

WHAT IS CLAIMED IS:

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1 *3bB2* 1. A non-woven web comprising:
2 recycled cellulose fiber;
3 recycled glass fiber, and
4 a sizing agent which provides the mat with decreased liquid penetrability over
5 time.

1 2. The apparatus of claim 1, wherein the sizing agent is alkenyl succinic
2 anhydride.

S 001 1 3. The apparatus of claim 2, wherein the sizing agent has a dry basis add-on rate
2 of from about 0.15% to about 0.4%.

1 4. The apparatus of claim 2, wherein the sizing agent has a dry basis add-on rate
2 of from about 0.2% to about 0.3%.

1 5. The apparatus of claim 1, wherein the sizing agent provides the mat with
2 decreased liquid penetrability four weeks after mat production.

1 6. The apparatus of claim 1, further comprising untreated clarifier sludge.

1 7. The apparatus of claim 6, wherein the sizing agent is alkenyl succinic
2 anhydride.

1 8. The apparatus of claim 7, wherein the sizing agent has a dry basis add-on rate
2 of from about 0.15% to about 0.4%.

Sub A/2

9. The apparatus of claim 7, wherein the sizing agent has a dry basis add-on rate
of from about 0.2% to about 0.3%.

1 *Sub B²* 10. A non-woven web comprising:
2 recycled cellulose fiber;
3 recycled glass fiber, and
4 alkenyl succinic anhydride as a sizing agent.

Sub A/3

11. The apparatus of claim 10, wherein the alkenyl succinic anhydride has a dry
basis add-on rate of from about 0.15% to about 0.4%.

Sub A/3

12. The apparatus of claim 10, wherein the alkenyl succinic anhydride has a dry
basis add-on rate of from about 0.2% to about 0.3%.

1 13. The apparatus of claim 10, wherein the alkenyl succinic anhydride provides
2 the mat with decreased liquid penetrability four weeks after mat production.

1 14. The apparatus of claim 10, further comprising untreated clarifier sludge.

1 15. The apparatus of claim 14, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.15% to about 0.4%.

Sab 2
1 16. The apparatus of claim 14, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.2% to about 0.3%.

Sab 2
1 17. A method of forming a non-woven web, the method comprising:

2 making a mixture of recycled cellulose fiber and recycled glass fiber;

3 adding a sizing agent to the mixture;

4 forming the mixture into a mat;

5 choosing the sizing agent to provide the mat with decreased liquid penetrability

6 over time.

Sab 2
1 18. The method of claim 17, wherein the sizing agent is alkenyl succinic
2 anhydride.

Sab 2
1 19. The method of claim 17, further comprising adding the sizing agent at a dry
2 basis add-on rate of from about 0.15% to about 0.4%.

Sab 2
1 20. The method of claim 17, further comprising adding the sizing agent at a dry
2 basis add-on rate of from about 0.2% to about 0.3%.

Sab 2
1 21. The method of claim 17, wherein the sizing agent provides the mat with
2 decreased liquid penetrability four weeks after mat production.

Sab 2
1 22. The method of claim 17, further comprising adding untreated clarifier sludge
2 to the mixture.

1 *Sub B* 23. The method of claim 22, wherein the sizing agent is alkenyl succinic
2 anhydride.

1 24. The method of claim 22, further comprising adding the sizing agent at a dry
2 basis add-on rate of from about 0.15% to about 0.4%.

1 25. The method of claim 22, further comprising adding the sizing agent at a dry
2 basis add-on rate of from about 0.2% to about 0.3%.

1 26. A rigid cellular foam board comprising:

2 a first facer and a second facer;

3 a rigid cellular foam formed between the first facer and the second facer;

4 wherein at least one of the first facer and the second facer comprise:

5 recycled cellulose fiber;

6 recycled glass fiber, and

7 a sizing agent which provides the facer with decreased liquid penetrability
8 over time.

1 27. The apparatus of claim 26, wherein the sizing agent is alkenyl succinic
2 anhydride.

Sub R3

1 28. The apparatus of claim 26, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.15% to about 0.4%.

1 29. The apparatus of claim 26, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.2% to about 0.3%.

1 30. The apparatus of claim 26, wherein the sizing agent provides the facer with
2 decreased liquid penetrability four weeks after facer production.

Sub A3

1 31. The apparatus of claim 26, wherein the foam is a polyisocyanurate foam.

1 32. The apparatus of claim 26, wherein at least one of the first facer and the
2 second facer further comprise untreated clarifier sludge.

1 33. The apparatus of claim 32, wherein the sizing agent is alkenyl succinic
2 anhydride.

1 34. The apparatus of claim 32, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.15% to about 0.4%.

1 35. The apparatus of claim 32, wherein the sizing agent has a dry basis add-on
2 rate of from about 0.2% to about 0.3%.